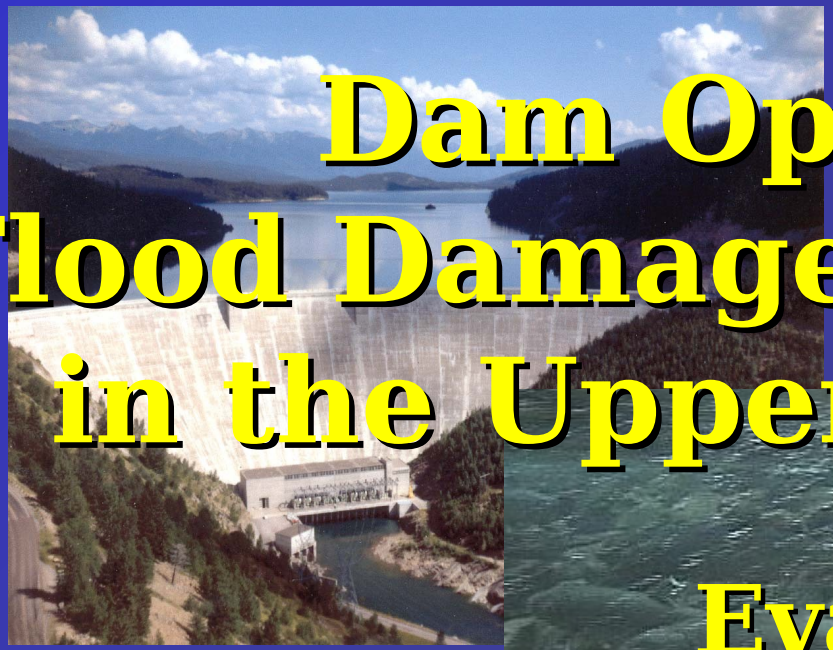
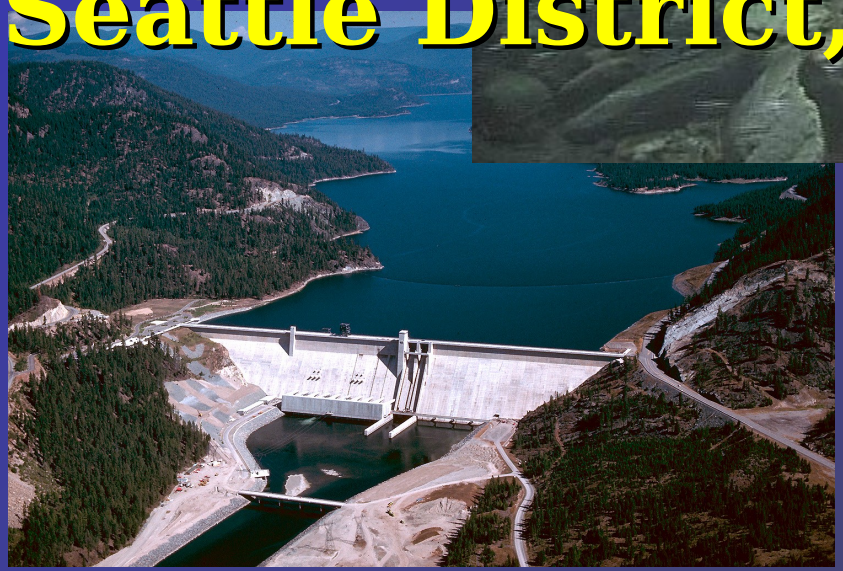
Dam Operations for Flood Damage Reduction & Fish in the Upper Columbia Basin



Evan Lewis
Seattle District, Corps of Engineers



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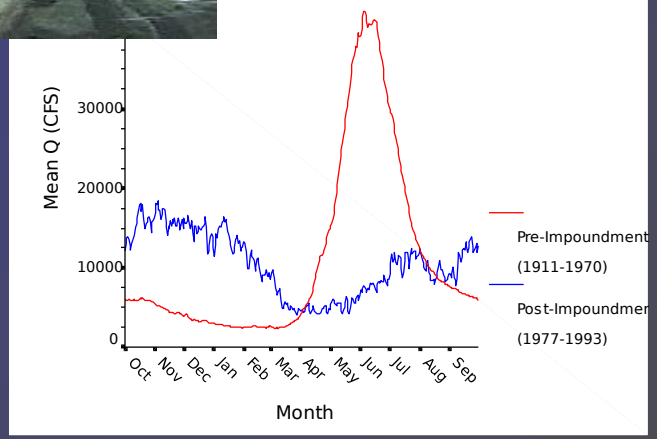

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Presentation Outline

- Regional setting
- Why consider changing dam operations?
- Key issues
- Analysis of effects on agriculture

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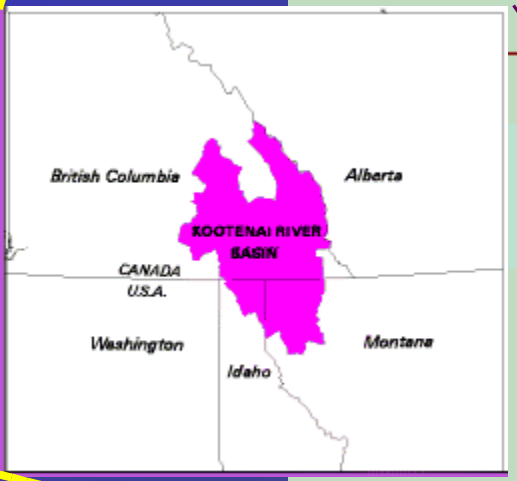
KOOTENAI RIVER BASIN



Kootenay Lake

Queens Bay

Nelson

Columbia River

Fort Steele

Lake Koocanusa

Bonners Ferry

WA

ID

MT

Leonia

Troy

Kootenai River

Libby

Libby Tailwater

Fisher

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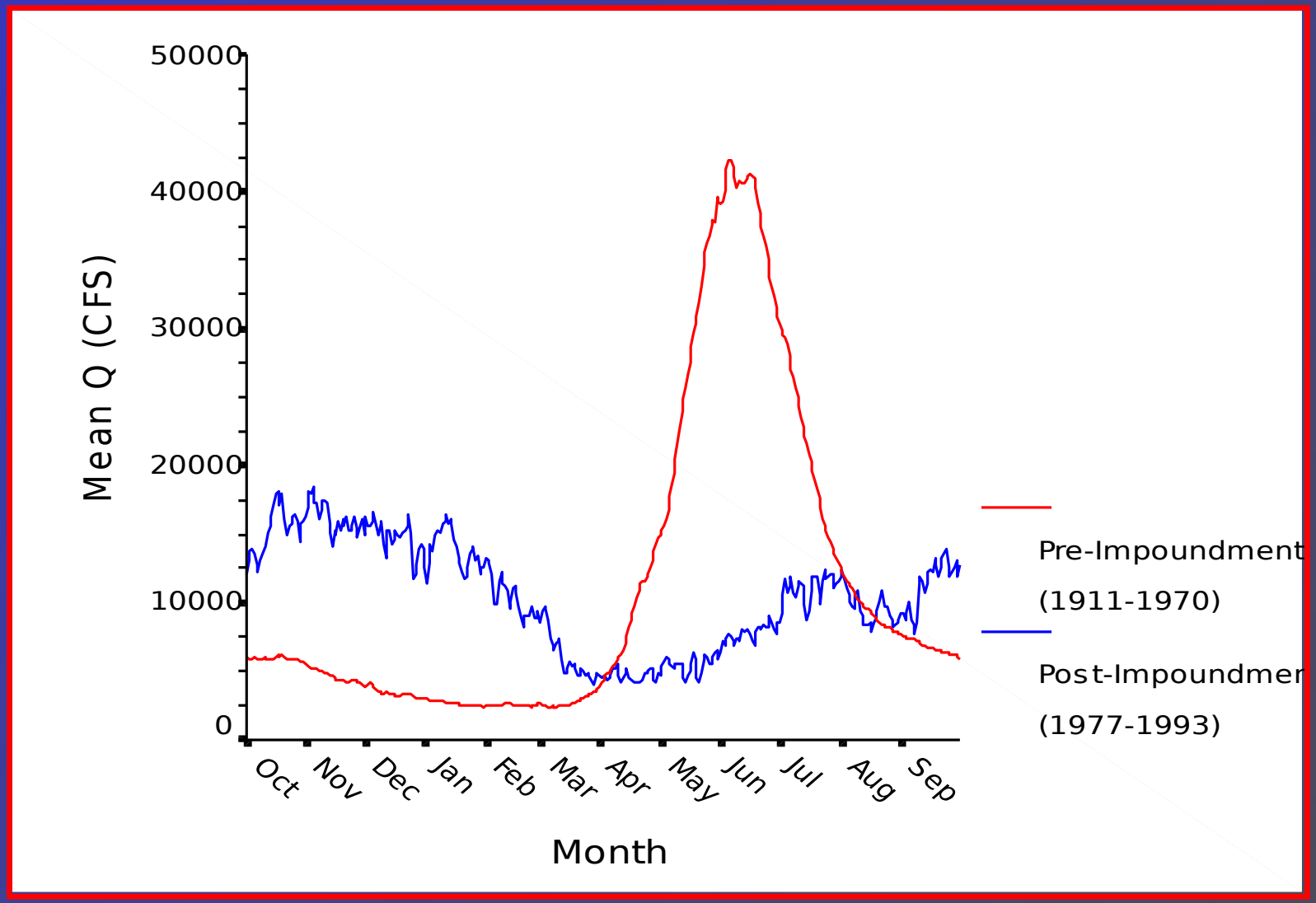
Libby Dam

- Constructed in early 1970's
- Authorized for flood damage reduction and hydropower
  - Local flood control (Montana & Idaho)
  - System flood control (Portland, Oregon)
- Compared to pre-dam conditions:
  - Spring freshet flows lower for flood damage reduction
  - Winter flows higher for hydropower production

Pre- & Post-Libby Dam Hydrograph



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Endangered Species Act Requirements

- Operation of Federal dams adversely affects threatened and endangered fish species.
  - Sturgeon, bull trout, salmon, steelhead
- A variety of actions are required to conserve and recover these threatened and endangered fish species.
- Requirements include changes in water management
  - Water storage (flood damage reduction)
  - Timing and flow rate of dam discharges (fish flows)

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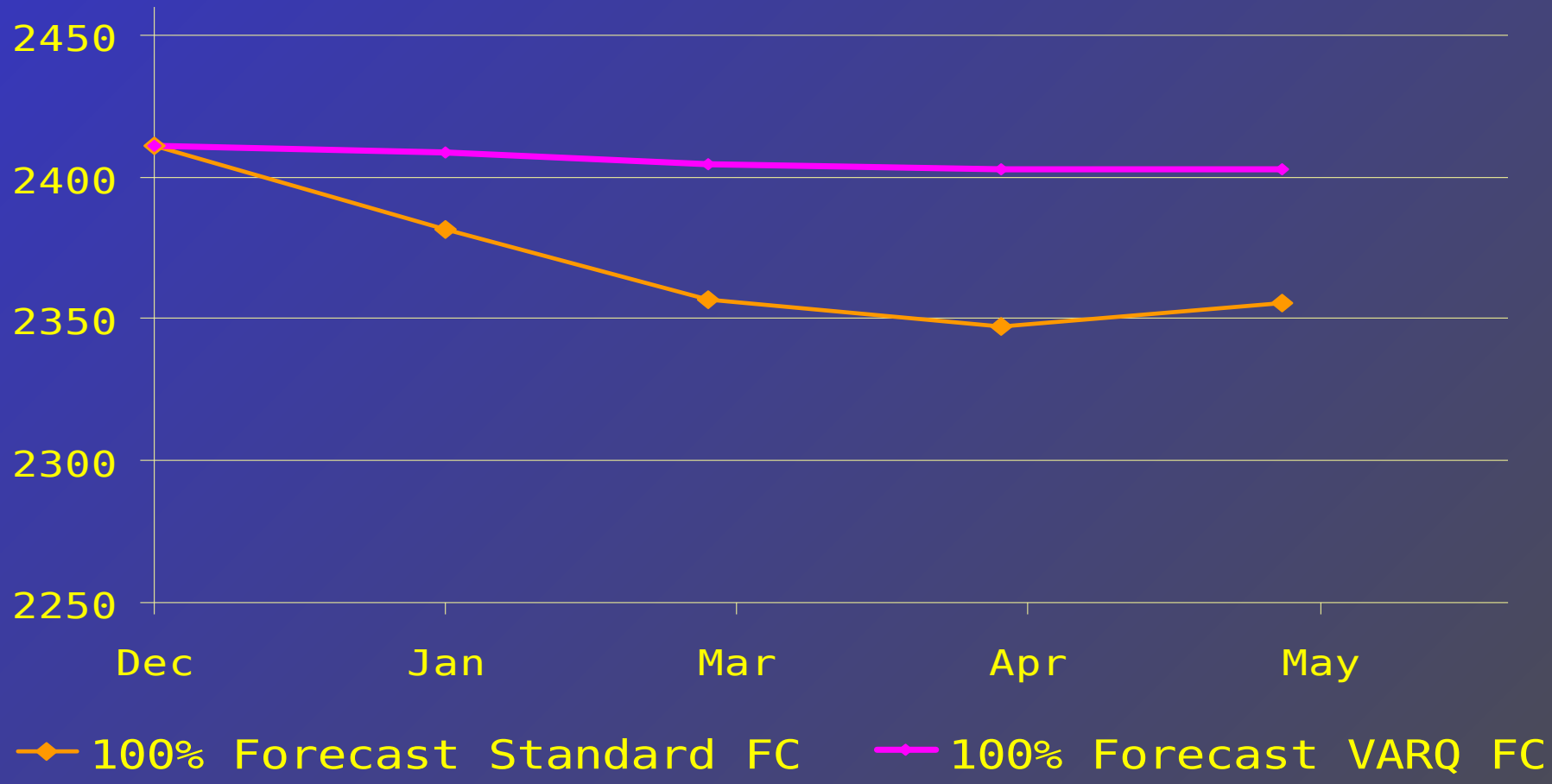
LIBBY - 100% WATER SUPPLY FORECAST



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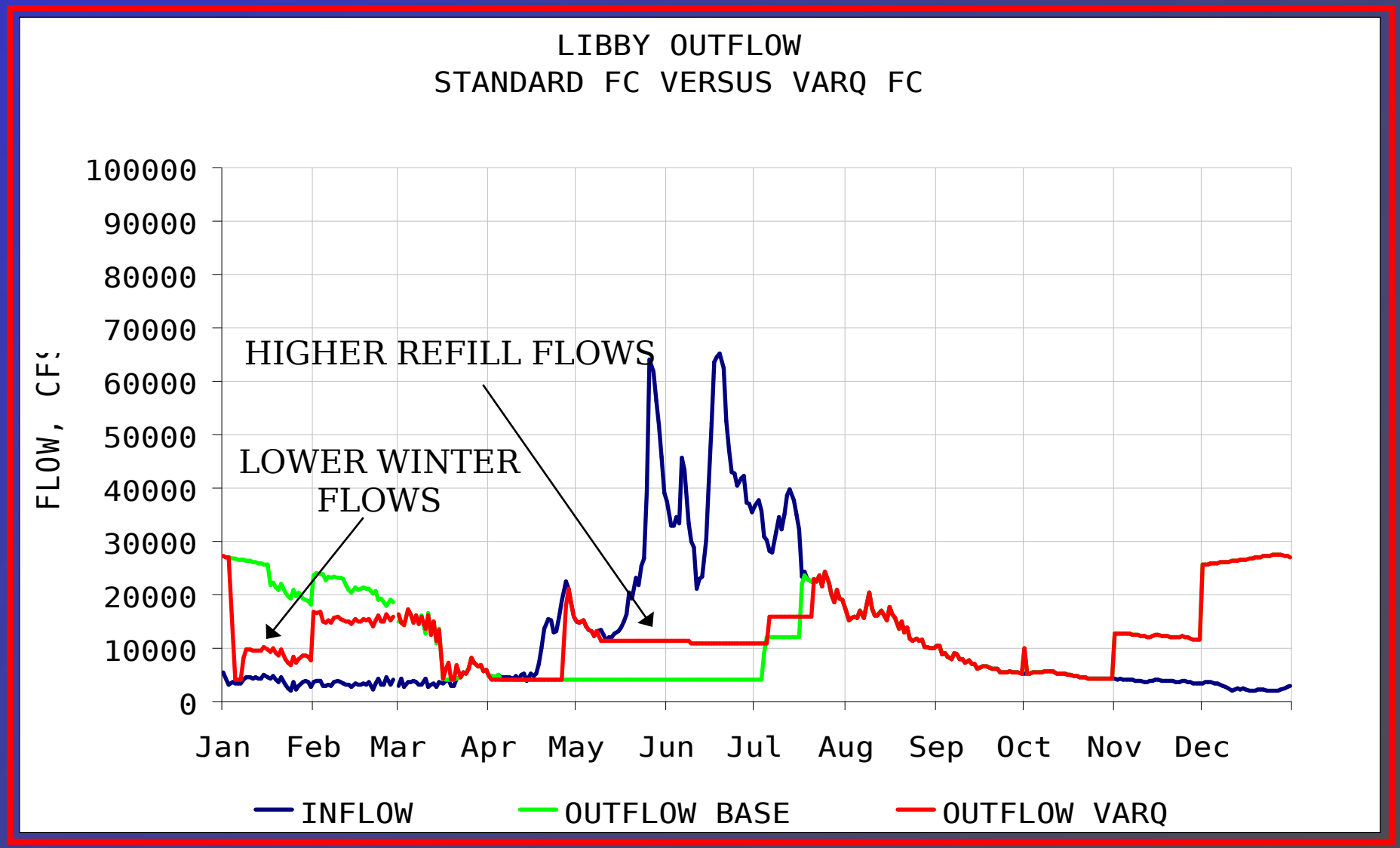

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Issues and Evaluation

- Water for sturgeon to be provided in spring during primary flood season
  - Local community concerned about flood risk, agricultural impacts, and other factors
  - USFWS and environmental groups concerned about sturgeon recovery
- EIS to evaluate effects of water storage and flow releases for benefit of listed fish species, including sturgeon

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Agricultural Concerns

- 30,000 acres in agricultural production near Bonners Ferry, Idaho
  - Wheat, barley, canola, hay
  - Hops
- 2,000 acres potentially wetter w/ sustained high river stage &/or local runoff
- Soil waterlogging affects economic return to farmers

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Evaluation of Agricultural Seepage

Agronomy

- How do crops respond to soil waterlogging?
  - Yield Response Curve
  - Dependent on Crop
  - Dependent on Seasonal Timing

Farmer Interviews

- Crop Patterns
  - What's grown
  - Where
  - How much acreage
- How do farmers respond to soil waterlogging?
  - Planting
  - Fertilizer
  - Herb-/Pesticide Application
  - Pumping for drainage

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Evaluation of Agricultural Seepage

Groundwater Modeling

- How does groundwater respond to different river conditions?
  - Dam operations
  - Runoff conditions
  - Tributary flows
  - Kootenay Lake backwater
  - Seasonal Timing

Economic Analysis

- Bring together:
  - Crop responses
  - Farming practices
  - Modeled groundwater conditions
- Compare dollar impact of waterlogging on the local agricultural community from different dam operations

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Evaluation of Agricultural Seepage
Public Outreach

- Working with group of local officials, farmers, and tribal staff
  - Discuss and formulate study methods and objectives
- Better analysis of impacts
- Community understanding
- Broad-based buy-in to study results

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Project Schedule

- Complete Technical Studies – Spring ‘04-Jan ’05
  - Agricultural Seepage Study by October ’04.
- Draft EIS public review starts – Spring 2005
- Final EIS and Record of Decision – Fall ’05
- Implement Preferred Alternative – Jan. ‘06

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For More Information

Upper Columbia EIS Website - http://www.usbr.gov/pn/programs/VARQ/index.html

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